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DOCUMENT-IDENTIFIER: US 6717925 B1

TITLE: Point-to-multipoint mobile radio transmission

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Application Filing Date - AD (1):

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Brief Summary Text - BSTX (7):

The GPRS radio interface for GSM Phase 2+ (GSM 04.65) can be modelled as a hierarchy of logical layers with specific functions as shown in FIG. 1, where the mobile station (MS) and the network have identical layers which communicate via the MS/network interface Um. Each layer formats data received from the neighbouring layer, with received data passing from the bottom to the top layer and data for transmission passing from the top to the bottom layer.

Brief Summary Text - BSTX (19):

Preferably, data is formatted for transmission according to a subnetwork dependent convergence protocol (SND CP). The SND CP formats data, in one of a plurality of different packet data protocols (PDP), for transmission via the system and vice versa for received data. The SND CP processes data in SND CP units, each of which contains a network service access point identifier (NSAPI) which identifies the PDP in use, to the SND CP. The NSAPI may provide said protocol identifier. Typically the NSAPI has a value of 0 to 15 and it is one of these values which is permanently assigned to PTM-M.

Detailed Description Text - DETX (4):

The LLC layer formats data into LLC frames each of which contains a data link connection identifier (DLCI) which in turn contains a SAPI (with a value of from 0 to 15). As already explained above, the SAPI identifies the service access point on the network side and the user side of the LLC layer. SAPIs have a predefined value, known to the network and the listening MSs (typically the SAPIs are prestored in a memory of the MS), so that the LLC layer can 'route' received transmissions appropriately even in the IDLE state. Consider for example the case where a transmission is received by a MS.

Detailed Description Text - DETX (8):

FIG. 4 illustrates a modification to the protocol architecture show in FIG. 3. This relies upon PTM-M transmissions not being routed through the SND CP layer. Rather, these transmissions are routed to the PTM-M layer directly from the LLC layer. In this case, a PTM-M transmission can be identified by permanently allocating a SAPI to PTM-M transmissions. BSC Base Station

Controller BSS Base Station Subsystem BTS Base Transceiver Station GGSN Gateway
GPRS Support Node GPRS General Packet Radio Service GSM Global System for
Mobile Communications HLR Home Location Register IP Internet Protocol L3M Layer
3 Management LLC Logical Link Control MAC Medium Access Control MS Mobile
Station MSC Mobile Switching Centre NSAPI Network Service Access Point
Identifier PC/PDA Personal Computer/Personal Data Assistant PDP Packet Data
Protocol PDU Packet Data Unit PSTN Public-Switched Telephone Network PTM-G
Point-To-Multipoint Group PTM-M Point-To-Multipoint Multicast PTP
Point-To-Point RLC Radio Link Control SAPI Service Access Point Identifier SGSN
Serving GPRS Support Node SMS Short Message Service SMDCP Subnetwork Dependent
Convergence Protocol SS7 Signalling System number 7 TCP/IP Transmission Control
Protocol/Internet Protocol TDMA Time Division Multiplexed Access Um Mobile
Station to Network interface UMTS Universal Mobile Telecommunications Service
X.25 network layer protocol specification

Claims Text - CLTX (3):

3. A method according to claim 2, wherein data is formatted for transmission according to a subnetwork dependent convergence protocol (SMDCP) which formats data in one of a plurality of different packet data protocols (PDP) for transmission via the system and vice versa for received data, the SMDCP processing data being in SMDCP units, each of which contains a network service access point identifier (NSAPI) which identifies the PDP in use to the SMDCP and the NSAPIs providing said protocol identifiers.

Claims Text - CLTX (7):

7. Apparatus according to claim 5, wherein said apparatus forms part of the General Packet Radio Service (GPRS) and further comprises means for formatting data for transmission according to a subnetwork dependent convergence protocol (SMDCP) which formats data in one of a plurality of different packet data protocols (PDP) for transmission via the system and vice versa for received data, the SMDCP processing data being in SMDCP units, each of which contains a network service access point identifier (NSAPI) which identifies the PDP in use to the SMDCP and the NSAPIs providing said protocol identifiers.